

ABSTRACT

**[0035]** An apparatus and method for the monitoring and measurement of chemical and/or biological deposition in heat exchangers and other fluid processing vessels. The new and original sensing system includes at least two hollow fluid vessels conductively mounted across a constant heat transfer path. Thin film heat flux sensors are attached to a heat transfer surface of the vessels in order to measure changes in differential heat flux that occur when deposition begins to accumulate in the vessel. In this way, it is shown that differential heat flux measurements can be used to detect and measure the early onset of chemical and/or biological deposition.